Area-Wide Soil Contamination Project
Background Information

Introduction

Summary: Soil in large areas of Washington State is contaminated with low-to-moderate levels of contaminants, including arsenic and lead, caused by a range of historical activities. As Washington's population has grown, many of these areas have been developed into residential neighborhoods, schools, and parks. These development activities have created pressures for cleanup and raised a variety of health, environmental, and marketplace concerns. The Departments of Ecology, Agriculture, and Health and the Office of Community Development have decided to examine these issues and concerns and develop a statewide strategy for responding to widespread low-to-moderate level soil contamination problems, with an initial focus on arsenic and lead. The Washington Legislature appropriated $1.2 million for Ecology to hire a contractor to support agency efforts. This document provides background on the issue and briefly describes the project.

Background: Ecology has identified over 8,000 contaminated sites throughout the State of Washington. Most of these sites are the result of historic industrial and commercial operations and/or waste disposal practices. Contamination problems from these sources tend to be relatively localized (ranging in size from less than an acre to the equivalent of several city blocks) and involve highly contaminated soils, groundwater, etc. These sites are typically located in industrial/commercial zones where there are limited opportunities for the public to come into contact with contaminated materials on a regular basis.

However, a second type of soil contamination problem involves low-to-moderate levels of soil contamination that encompass much larger geographic areas (i.e., ranging in size from several hundred acres to many square miles). Low-to-moderate levels is a general term that refers to soil contamination levels that are one-to-two orders of magnitude higher than the Model Toxics Control Act (MTCA) Cleanup Standards. Such levels present health and environmental risks, but are generally lower than concentrations found in industrial wastes and/or present as a result of localized spills.

These areas of widespread low-to-moderate level soil contamination create what are known as "area-wide soil contamination problems." The large size, various types of land uses, and various types of public exposure to these area-wide soil contamination areas result in potential health, environmental, and marketplace concerns. These broad issues and concerns relate to the regulatory and programmatic responsibilities of the Departments of Ecology, Agriculture, and Health and the Office of Community Development.

Area-wide soil contamination problems arise from three main sources:

- Past Releases from Industrial Operations: Since the beginning of the 20th century, numerous industrial facilities have operated in Washington. In some cases, emissions from these facilities have caused widespread soil contamination. Ecology is currently investigating the area-wide soil contamination associated with the Tacoma Smelter Plume and Everett Smelter Plume, and developing a strategy for addressing the contamination.

- Historic Application of Agricultural Pesticides: Many of the agricultural pesticides used in Washington before the 1950s were highly persistent. These products, for example, lead arsenate, tend to remain in the upper levels of soil for long periods of time after they are applied. Over time, levels of contamination built up and have not dissipated even though use of the products was discontinued decades ago.

- Other Miscellaneous Sources: Other sources and activities that have resulted in widespread soil contamination include: pesticide application at golf courses, combustion of leaded gasoline, and deterioration of lead-based paint.

Area-Wide Soil Contamination Challenges: Widespread low-to-moderate level soil contamination creates several inter-connected challenges:

- Human Health Protection: Homes, schools, and parks are currently located in many of the contaminated areas. In some cases, development of contaminated areas has resulted in the removal, capping, or mixing of contaminated soils. However, in other cases, contaminated soils remain at levels that may pose chronic health threats to people living in those areas. Small children are particularly susceptible to contaminated soils because of higher exposures and greater sensitivity to hazardous substances.

- Land Use Conversions: Washington's high population growth has resulted in many agricultural areas and/or forested areas being converted to residential uses. This land use conversion can bring people into contact with contaminated areas that previously may not have been accessible to the public.

- Financial Impacts: Citizens and land developers have purchased or built homes in areas with contaminated soils. This can create significant financial problems that may include paying for cleanup, reduced property values, and difficulties selling homes.

- Citizen Awareness: Many citizens are unaware that soil at their homes, future homes and/or children's schools may contain elevated levels of hazardous substances. Consequently, they are unable to take steps to reduce health or financial impacts.

Need for an Area-Wide Soil Contamination Strategy: Federal and state cleanup programs have been in place for twenty years and have cleaned-up or overseen the cleanup of a significant number of contaminated sites in Washington State. However, the Departments of Ecology, Agriculture, and Health and the Office of Community Development believe that new approaches and stronger interagency partnerships will be needed if Washington is to successfully address the health and financial concerns associated with area-wide soil contamination problems. This conclusion is based upon several factors:

- The geographic scale of these problems is significantly greater than contamination problems generally addressed by state and federal cleanup programs;

- Current approaches do not provide a systematic framework for integrating traditional cleanup strategies with local land use planning and permitting;

- The current system lacks key information needed to effectively address area-wide soil contamination problems (e.g., current environmental conditions, etc.).

Area-Wide Soil Contamination Project

Project Objectives: Due to the presence of areas of widespread low-to-moderate level soil contamination and the associated potential health, environmental, and marketplace concerns, the Departments of Ecology, Agriculture and Health and the Office of Community Development have organized the Area-Wide Soil Contamination Project around the three general objectives:

- Improve our understanding of the nature and geographic extent of area-wide soil contamination problems;
- Identify feasible measures for protecting the health of people who live and work on or near properties that contain widespread low-to-moderate levels of soil contamination; and
- Identify current institutional frameworks (e.g., laws, regulations, land use planning processes, etc.) and new initiatives that will improve efforts to prevent threats to public health posed by widespread low-to-moderate level soil contamination.

Focus on Arsenic and Lead Soil Contamination: Even though there are other contaminants that may pose area-wide soil contamination problems, the agencies initial efforts will focus on problems associated with arsenic and lead. This decision was based on: (1) evidence that these substances were extensively used by the agricultural community during the first half of the twentieth century, (2) findings that these substances are present in soils in large areas surrounding metal smelters in Western Washington, (3) persistence of these substances in the environment, and (4) available information that indicates these contaminants are present at levels that exceed the residential soil cleanup levels established under the Washington State Model Toxics Control Act (MTCA) Cleanup Regulation.

While the area-wide soil contamination project will focus on arsenic and lead, the project will also examine the feasibility of applying the methods developed in this project to other contaminants, crops, and geographic areas. In general, the agencies anticipate that many project findings will be applicable to other types of soil contaminants that are present at low-to-moderate levels in large geographic areas.

Project Scope: The Department of Ecology has hired a specialized consultant team, led by Landau Associates, Inc. This team will work with the agencies, stakeholders, and public to evaluate the issues and concerns and develop a statewide strategy for responding to area-wide arsenic and lead soil contamination problems. The basic project components include:

- Area-Wide Soil Contamination Task Force: The Agency Directors have chartered an Area-Wide Soil Contamination Task Force that will be asked to provide findings and recommendations on steps that can be taken to better address area-wide soil contamination problems. The task force is comprised of approximately 18 members, including representatives of local government, elected officials, agriculture, environment, business/development, financial institutions, and education/schools. The four state agencies will participate as *ex officio* members. The task force will be staffed by Ecology and the consultant team.

- Geographic/Geochemical Assessment Work Group: This work group will be formed to work closely with the task force and address issues associated with defining the nature and extent of contamination.

- Protective Measures Work Group: This work group will be formed to work closely with the task force and address issues associated with defining measures for protecting human health and the environment.

- Institutional Frameworks: The project team will evaluate existing and potential institutional frameworks and identify ways to improve the way agencies and individuals address issues associated area-wide soil contamination problems (e.g., improvements in enabling legislation, regulatory programs, development processes, and institutions).

- Public Involvement: The project team will take steps to improve citizen and institutional awareness and promote public dialogue on the issues and concerns related to area-wide soil contamination problems.

Project Timeline: The area-wide soil contamination project will be implemented over an eighteen-month period ending June 30, 2003.